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FORM PTO-1390 (REV. 12-2001)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER 13833.0012
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371			U.S. APPLICATION NO. (If known, see 37 CFR 1.5) <b>10/089193</b>
INTERNATIONAL APPLICATION NO. PCT/FR99/02290	INTERNATIONAL FILING DATE 27 September 1999	PRIORITY DATE CLAIMED N/A	
TITLE OF INVENTION COSMETIC COMPOSITIONS BASED ON ORGANOSILICON COMPOUNDS COMPRISING AT LEAST ONE NONBASIC SOLUBILIZING FUNCTION			
APPLICANT(S) FOR DO/EO/US SAMAIN, Henri; ROLLAT, Isabelle; JEANNE ROSE, Valerie; SANCHEZ, Clement			
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:			
<p><input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</p> <p><input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.</p> <p>4. <input checked="" type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (Article 31).</p> <p>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2))</p> <p>a. <input checked="" type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau).</p> <p>b. <input type="checkbox"/> has been communicated by the International Bureau.</p> <p>c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</p> <p>6. <input checked="" type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).</p> <p>a. <input checked="" type="checkbox"/> is attached hereto.</p> <p>b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4).</p> <p>7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))</p> <p>a. <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau).</p> <p>b. <input type="checkbox"/> have been communicated by the International Bureau.</p> <p>c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</p> <p>d. <input checked="" type="checkbox"/> have not been made and will not be made.</p> <p>8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).</p> <p>9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</p> <p>10. <input type="checkbox"/> An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p> <p><b>Items 11 to 20 below concern document(s) or information included:</b></p> <p>11. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</p> <p>12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</p> <p>13. <input checked="" type="checkbox"/> A <b>FIRST</b> preliminary amendment.</p> <p>14. <input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment.</p> <p>15. <input type="checkbox"/> A substitute specification.</p> <p>16. <input type="checkbox"/> A change of power of attorney and/or address letter.</p> <p>17. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.</p> <p>18. <input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4).</p> <p>19. <input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4)</p> <p>20. <input checked="" type="checkbox"/> Other items or information:  PCT Request - Form PCT/RO/101  IPER - Form PCT/IPEA/409  Forms PCT/IB/301, 308 and 332</p>			



ATTY. DKT. 13833.0012

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Henri SAMAIN et al

Serial No.

Filed: Herewith

For: COSMETIC COMPOSITION BASED ON ORGANOSILICON  
COMPOUNDS COMPRISING AT LEAST ONE NONBASIC  
SOLUBILIZING FUNCTION

**PRELIMINARY AMENDMENT**

Asst. Commissioner of Patents  
Washington, D.C. 20231

Sir:

Prior to initial examination, please amend the above-  
identified application as follows:

IN THE ABSTRACT:

Add the Abstract of the Disclosure appended hereto.

IN THE SPECIFICATION:

Page 1, replace the second paragraph at lines 8-18 as  
follows:

--It is common practice to use organic compounds such as polymers to prepare cosmetic compositions for treating the hair. For example, polymers are used that give, on drying, solid materials for fixing the hairstyle in a shape. Such materials are also used to give shape-holding effects. Polymer compounds are also used, such as polysiloxanes, to give haircare effects, particularly to damaged hair or hair that is difficult to disentangle. Cosmetic compositions containing these polymers are applied to the hair and left to dry or rinsed out before proceeding to dry.--

Page 1, replace the fourth paragraph at lines 21-29 as follows:

--The first drawback lies in the fact that, when the polymers are used in compositions above a certain concentration, the compositions obtained are difficult to apply due to the increase in the viscosity of the compositions. This difficulty in applying the compositions leads to the hair being overloaded in certain areas and thus to cosmetic defects and also involves certain parts of the hair receiving less of the compositions, which, in the end, induces a reduced effect on these areas.--

Page 1, replace the last paragraph at lines 30-33 through page 2, first three lines, as follows:

--The second drawback lies in the fact that these compositions are occasionally difficult to use. Specifically, polymer compounds of low water solubility require the use of an organic solvent or a mixture of organic solvents. The use of an organic solvent entails several problems, for instance environmental problems and problems affecting the cosmetic quality of the hair.--

Page 2, replace the first-fourth full paragraphs at lines 3-31 as follows:

--To overcome these drawbacks, attention has thus turned toward the use of polymer compounds that have been made partially water-soluble. Thus, certain polymer compounds may be used in water without adding any co-solvent. In this case, the limitation lies in the fact that these polymer compounds are partially, or even totally, removed by rinsing the hair. Consequently, in this case, the effect due to the polymer compounds is very limited after rinsing. Ultimately, this limits the effect of rinse-out treatments (shampooing, conditioning), but also reduces the advantage of such compositions used in leave-in mode (hairsetting lotions, mousses, lacquers, etc.) since the user loses the effect acquired by the treatment when the user washes the hair.

Efforts have thus been devoted toward finding compounds for formulating cosmetic compositions that can be used in water and that retain their effect when the hair is rinsed.

Thus, U.S. Patent No. 4,344,763 (Gillette) describes cosmetic compositions comprising an organosiloxane monomer such as an aminoalkylalkoxysilane and an organic titanate dissolved in an alcohol.

More specifically, the patent describes a process for shaping the hair which consists in moistening the hair with water and then in applying a solution containing, in isopropanol, from 0.5% to 15% by weight of an aminoalkylalkoxysilane and from 0.005% to 1.5% by weight of an organic titanate, and then in placing the hair in the desired shape.--

Page 3, replace the second full paragraph at lines 4-10 as follows:

--A process has also been disclosed, in EP 113 992, for simultaneously fixing and conditioning the hair using a composition that is stable in the absence of moisture, containing (A) a siloxane oligomer containing at least one nitrogen-hydrogen bond, and (B) an anhydrous, readily hydrolyzable additive chosen from titanates, zirconates, vanadates, germanates, and mixtures thereof.--

Page 3, replace the last paragraph at lines 31-34 through page 4, lines 1-5, as follows:

--The inventors have found, surprisingly, that it is possible to formulate cosmetic compositions not requiring the use of an organic solvent and having an effective, rinse-fast cosmetic effect, without the risk of problems of the hair being charged in the event of overloading, by using in these compositions unpolymerized or relatively unpolymerized, water-soluble organosilicon compounds comprising at least one nonbasic solubilizing chemical function.--

Page 4, replace the second and third full paragraphs at lines 6-20 as follows:

--It has been observed that when such compositions are applied, pronounced cosmetic effects are obtained without any problems in the event of overloading, and the effects of which are very rinse-fast and wash-fast.

According to the invention, the cosmetic compositions, in particular for treating the hair, comprise, in a cosmetically acceptable aqueous medium, at least 0.02% by weight, relative to the total weight of the composition, of one or more unpolymerized or relatively unpolymerized, water-soluble organosilicon compounds chosen from organosilanes comprising one silicon atom and organosiloxanes comprising two or three silicon



--R" represents a halogen or an OR<sub>2</sub> or R'<sub>0</sub> group;

R"' represents a halogen or an OR<sub>3</sub> or R"<sub>0</sub> group;--

Page 6, replace the third full paragraph at lines 13-16 as follows:

--Preferably, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>0</sub>, R'<sub>0</sub> and R"<sub>0</sub> represent a C<sub>1</sub> to C<sub>12</sub> alkyl group, a C<sub>6</sub> to C<sub>14</sub> aryl group, a (C<sub>1</sub> to C<sub>8</sub>)alkyl(C<sub>6</sub> to C<sub>14</sub>)aryl group or a (C<sub>6</sub> to C<sub>14</sub>)aryl(C<sub>1</sub> to C<sub>8</sub>)alkyl group.--

Page 6, replace the subparagraphs at lines 24-25 and 26 as follows:

--R, R<sub>2</sub>, R' and R"' are defined as above, and R"" represents a halogen, an OR<sub>4</sub> group or an R""<sub>0</sub> group;

R<sub>5</sub> represents a halogen, an OR<sub>6</sub> group or an R""<sub>0</sub> group;--

Page 7, replace the first full paragraph at lines 5-11 as follows:

--Preferably, R<sub>4</sub>, R<sub>6</sub>, R<sub>0</sub>, R"<sub>0</sub>, R"'<sub>0</sub> and R""<sub>0</sub> represent a C<sub>1</sub> to C<sub>12</sub> alkyl group, a C<sub>6</sub> to C<sub>14</sub> aryl group, a (C<sub>1</sub> to C<sub>8</sub>)alkyl(C<sub>6</sub> to C<sub>14</sub>)aryl group or a (C<sub>6</sub> to C<sub>14</sub>)aryl(C<sub>1</sub> to C<sub>8</sub>)alkyl group; and R<sub>5</sub> preferably represents a C<sub>1</sub> to C<sub>12</sub> alkyl group, a C<sub>1</sub> to C<sub>12</sub> alkoxy group, a C<sub>6</sub> to C<sub>14</sub> aryl group, a (C<sub>1</sub> to C<sub>8</sub>)alkyl(C<sub>6</sub> to C<sub>14</sub>)aryl group or a (C<sub>6</sub> to C<sub>14</sub>)aryl(C<sub>1</sub> to C<sub>8</sub>)alkyl group.--

# IN THE CLAIMS:

Cancel claims 1-8 and substitute the following new claims therefor:



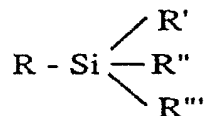
--9. (New) A cosmetic composition comprising, in a cosmetically acceptable aqueous medium, at least 0.02% by weight, relative to the total weight of the composition, of at least one substantially unpolymerized, water-soluble organosilicon compound, the organosilicon compound being a silane having one silicon atom or a siloxane having two or three silicon atoms, the organosilicon compound also having at least one nonbasic solubilizing chemical function and at least two hydroxyl or hydrolyzable groups per molecule.

10. (New) The cosmetic composition of claim 9, wherein the organosilicon compound represents at least 0.5% by weight of the composition.

11. (New) The composition of claim 9, wherein the nonbasic solubilizing chemical function is a carboxylic acid or its salt, a quaternary ammonium, a sulphonic acid or its salt, a poly(alkyl ether), a polyacrylamide or acrylamide, or a polyol.

12. (New) The composition of claim 9, wherein the hydrolyzable groups are alkoxy, aryloxy or halogen groups.

13. (New) The cosmetic composition of claim 9, wherein the organosilicon compound has the formula:



in which:

R' represents a halogen or an OR<sub>1</sub> or R<sub>0</sub> group;

R'' represents a halogen or an OR<sub>2</sub> or R'<sub>0</sub> group;

R''' represents a halogen or an OR<sub>3</sub> or R''<sub>0</sub> group;

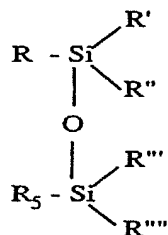
at least two of the groups R', R'' and R''' being other than the groups R<sub>0</sub>, R'<sub>0</sub> and R''<sub>0</sub>;

R is a saturated or unsaturated, linear or branched hydrocarbon-based group comprising a nonbasic solubilizing chemical function;

R<sub>0</sub>, R'<sub>0</sub>, R''<sub>0</sub>, R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> represent, independently of each other, a substituted or unsubstituted, saturated or unsaturated, linear or branched hydrocarbon-based group, the optional substituent being an additional nonbasic solubilizing chemical group; and

R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> may represent, independently of each other, hydrogen.

14. (New) The cosmetic composition of claim 9, wherein the organosilicon has the formula:



in which:

R'' represents a halogen or an OR<sub>2</sub> group;

R' represents a halogen or an OR<sub>1</sub> or R<sub>0</sub> group;

R''' represents a halogen or an OR<sub>3</sub> or R''<sub>0</sub> group;

R is a saturated or unsaturated, linear or branched hydrocarbon-based group comprising a nonbasic solubilizing chemical function;

R<sub>0</sub>, R''<sub>0</sub>, R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> represent, independently of each other, a substituted or unsubstituted, saturated or unsaturated, linear or branched hydrocarbon-based group, the optional

substituent being an additional nonbasic solubilizing chemical group;

$R_1$ ,  $R_2$  and  $R_3$  may represent, independently of each other, hydrogen; and

$R''$  represents a halogen, an  $OR_4$  group or an  $R''_0$  group;

$R_5$  represents a halogen, an  $OR_6$  group or an  $R'''_0$  group;

at least one of the groups  $R''$ ,  $R'''$  and  $R_5$  being other than the groups  $R''_0$ ,  $R'''_0$  and  $R'''_0$ ; and

$R_4$ ,  $R_6$ ,  $R''_0$  and  $R'''_0$  represent a substituted or unsubstituted, saturated or unsaturated, linear or branched hydrocarbon-based group, the optional substituent being an additional nonbasic solubilizing chemical group; and

$R_4$  and  $R_6$  may represent, independently of each other, hydrogen.

15. (New) The cosmetic composition of claim 14, wherein  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_6$ ,  $R_0$ ,  $R'_0$ ,  $R''_0$ ,  $R'''_0$  and  $R'''_0$  represent a  $C_1$  to  $C_{12}$  alkyl group, a  $C_6$  to  $C_{14}$  aryl group, a  $(C_1$  to  $C_8)$ alkyl( $C_6$  to  $C_{14}$ )aryl group or a  $(C_6$  to  $C_{14})$ aryl( $C_1$  to  $C_8$ )alkyl group.

16. (New) The composition of claim 9, wherein the composition is in the form of a hair product.

17. (New) The composition of claim 16, wherein the composition is in the form of a hair product for holding the hair or for shaping the hair.--

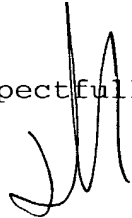
R E M A R K S

The specification has been amended to make minor editorial changes, original claims 1-8 have been cancelled in lieu of new claims 9-17 presented herewith, and an Abstract of the Disclosure has been added.

Attached hereto is a marked-up version of the changes made to the specification by the present Amendment. The attachment is captioned "Version with markings to show changes made."

In view of the foregoing, early action on the merits is respectfully requested.

Respectfully submitted,



D. Douglas Price  
Reg. No. 24,514

STEPTOE & JOHNSON LLP  
1330 Connecticut Ave., N.W.  
Washington, D.C. 20036  
Tel: (202) 429-6748

$$\frac{d}{dt} \left( \frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}, \quad \text{H. } \frac{d}{dt} \left( \frac{\partial L}{\partial \dot{y}} \right) = \frac{\partial L}{\partial y}$$

IN THE ABSTRACT:

An Abstract of the Disclosure has been added.

IN THE SPECIFICATION:

Page 1, the second paragraph at lines 8-18 has been amended as follows:

--It is common practice to use organic compounds such as polymers to prepare cosmetic compositions for treating the hair. For example, polymers are used that give, on drying, solid materials for fixing the hairstyle in a shape [are used]. Such materials are also used to give shape-holding effects. Polymer compounds, such as polysiloxanes, are also used to give haircare effects, particularly to damaged hair or hair that is difficult to disentangle. Cosmetic compositions containing these polymers are applied to the hair and left to dry or rinsed out before proceeding to dry.--

Page 1, the fourth paragraph at lines 21-29 has been amended as follows:

--The first drawback lies in the fact that, when the polymers are used in compositions above a certain concentration, the compositions obtained are difficult to apply due to the increase in the viscosity of the [composition] compositions. This difficulty in applying the compositions leads to the hair being overloaded in certain areas and thus to cosmetic defects and also involves certain parts of the hair receiving less of

the compositions, which, in the end, induces a reduced effect on these areas.--

Page 1, the last paragraph at lines 30-34, and page 2, first two lines, has been amended as follows:

--The second drawback lies in the fact that these compositions are occasionally difficult to use. Specifically, polymer compounds of low water solubility require the use of an organic solvent or a mixture of organic solvents. The use of an organic solvent entails several problems, for instance environmental problems and problems affecting the cosmetic quality of the hair.--

Page 2, the first through fourth full paragraphs at lines 3-31 have been amended as follows:

--To overcome these drawbacks, attention has thus turned toward the use of polymer compounds that have been made partially water-soluble. Thus, certain polymer compounds may be used in water without adding any co-solvent. In this case, the limitation lies in the fact that these polymer compounds are partially, or even totally, removed by rinsing the hair. Consequently, in this case, the effect due to the polymer compounds is very limited after rinsing. Ultimately, this limits the effect of rinse-out treatments (shampooing, conditioning), but also reduces the advantage of such compositions used in leave-in mode (hairsetting lotions, mousses, lacquers, etc.) since the user loses the effect acquired by the treatment when the user [he] washes [his] the hair.

Efforts have thus been devoted toward finding compounds for formulating cosmetic compositions that can be used in water and that [show remanence of] retain their effect when the hair is rinsed.

Thus, [US patent No. 4 344 763] U.S. Patent No. 4,344,763 (Gillette) describes cosmetic compositions comprising an organosiloxane monomer such as an aminoalkylalkoxysilane and an organic titanate dissolved in an alcohol.

More specifically, [said] the patent describes a process for shaping the hair[,] which consists in moistening the hair with water and then in applying a solution containing, in isopropanol, from 0.5% to 15% by weight of an aminoalkylalkoxysilane and from 0.005% to 1.5% by weight of an organic titanate, and then in placing the hair in the desired shape.--

Page 3, the second full paragraph at lines 4-10 has been amended as follows:

--A process has also been disclosed, in [patent EP-113 992] EP 113 992, for simultaneously fixing and conditioning the hair using a composition that is stable in the absence of moisture, containing (A) a siloxane oligomer containing at least one nitrogen-hydrogen bond, and (B) an anhydrous, readily hydrolyzable additive chosen from titanates, zirconates, vanadates, [and] germanates, and mixtures thereof.--

Page 3, the last paragraph at lines 31-34 through page 4, lines 1-5, has been amended as follows:

--The inventors have [Applicant has] found, surprisingly, that it is possible to formulate cosmetic compositions not requiring the use of an organic solvent and having an effective, rinse-fast cosmetic effect, without the risk of problems of the hair being charged in the event of overloading, by using in these compositions unpolymerized or relatively unpolymerized, water-soluble organosilicon compounds comprising at least one nonbasic solubilizing chemical function.--





carboxylic acids and their salts, quaternary ammoniums, sulphonic acids and their salts and poly(alkyl ether) residues such as poly(oxyalkylene) residues, for example, poly(ethylene oxide) and poly(propylene oxide) and polyglycols, polyacrylamides and acrylamides, and polyols (including natural polyols).

Page 6, the first two subparagraphs at lines 1-2 have been amended as follows:

--R" represents a halogen or an OR<sub>2</sub> or R'<sub>0</sub> group;  
R"' represents a halogen or an OR<sub>3</sub> or R''<sub>0</sub> group;--

Page 6, the third full paragraph at lines 13-16 has been amended as follows:

--Preferably, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>0</sub>, R'<sub>0</sub> and R''<sub>0</sub> represent a C<sub>1</sub> to C<sub>12</sub> alkyl group, a C<sub>6</sub> to C<sub>14</sub> aryl group, a (C<sub>1</sub> to C<sub>8</sub>)alkyl(C<sub>6</sub> to C<sub>14</sub>)aryl group or [and] a (C<sub>6</sub> to C<sub>14</sub>)aryl(C<sub>1</sub> to C<sub>8</sub>)alkyl group.--

Page 6, the subparagraphs at lines 24-25 and 26 have been amended as follows:

--R, R<sub>2</sub>, R' and R"' are defined as above, and R"" represents a halogen, [a group] an OR<sub>4</sub> group or [a group] an R''<sub>0</sub> group;  
R<sub>5</sub> represents a halogen, [a group] an OR<sub>6</sub> group or [a a group] an R""<sub>0</sub> group;--

Page 7, the first full paragraph at lines 5-11 has been amended as follows:

--Preferably, R<sub>4</sub>, R<sub>6</sub>, R<sub>0</sub>, R''<sub>0</sub>, R'''<sub>0</sub> and R""<sub>0</sub> represent a C<sub>1</sub> to C<sub>12</sub> alkyl group, a C<sub>6</sub> to C<sub>14</sub> aryl group, a (C<sub>1</sub> to C<sub>8</sub>)alkyl(C<sub>6</sub> to C<sub>14</sub>)aryl group [and] or a (C<sub>6</sub> to C<sub>14</sub>)aryl(C<sub>1</sub> to C<sub>8</sub>)alkyl group; and R<sub>5</sub> preferably represents a C<sub>1</sub> to C<sub>12</sub> alkyl group, a C<sub>1</sub> to C<sub>12</sub>

alkoxy group, a C<sub>6</sub> to C<sub>14</sub> aryl group, a (C<sub>1</sub> to C<sub>8</sub>)alkyl(C<sub>6</sub> to C<sub>14</sub>)aryl group [and] or a (C<sub>6</sub> to C<sub>14</sub>)aryl(C<sub>1</sub> to C<sub>8</sub>)alkyl group.--

IN THE CLAIMS:

Original claims 1-8 have been cancelled and new claims 9-17 substituted therefor.

[illegible]

- 17 -

**COSMETIC COMPOSITIONS BASED ON ORGANOSILICON COMPOUNDS**  
**COMPRISING AT LEAST ONE NONBASIC SOLUBILIZING FUNCTION**

5 The present invention relates generally to aqueous cosmetic compositions, in particular for treating the hair, comprising unpolymerized or relatively unpolymerized, water-soluble organosilicon compounds.

10 It is common practice to use organic compounds such as polymers to prepare cosmetic compositions for treating the hair. For example, polymers that give, on drying, solid materials for fixing the hairstyle in a shape are used. Such materials are also used to give shape-holding effects. Polymer compounds are also used, such as polysiloxanes, to give haircare effects, particularly to  
15 damaged hair or hair that is difficult to disentangle. Cosmetic compositions containing these polymers are applied to the hair and left to dry or rinsed out before proceeding to dry.

20 The use of polymer compounds presents many drawbacks.

The first drawback lies in the fact that, when the polymers are used in compositions above a certain concentration, the compositions obtained are difficult to apply due to the increase in the viscosity of the  
25 composition. This difficulty in applying the compositions leads to the hair being overloaded in certain areas and thus to cosmetic defects and also involves certain parts of the hair receiving less of the compositions, which, in the end, induces a reduced effect on these areas.

30 The second drawback lies in the fact that these compositions are occasionally difficult to use. Specifically, polymer compounds of low water solubility require the use of an organic solvent or a mixture of

organic solvents. The use of organic solvent entails several problems, for instance environmental problems and problems affecting the cosmetic quality of the hair.

5 To overcome these drawbacks, attention has thus turned toward the use of polymer compounds that have been made partially water-soluble. Thus, certain polymer compounds may be used in water without adding any co-solvent. In this case, the limitation lies in the fact that these polymer compounds are partially, or even totally,  
10 removed by rinsing the hair. Consequently, in this case, the effect due to the polymer compounds is very limited after rinsing. Ultimately, this limits the effect of rinse-out treatments (shampooing, conditioning), but also reduces the advantage of such compositions used in leave-in mode  
15 (hairsetting lotions, mousses, lacquers, etc.) since the user loses the effect acquired by the treatment when he washes his hair.

Efforts have thus been devoted toward finding compounds for formulating cosmetic compositions that can be  
20 used in water and that show remanence of their effect when the hair is rinsed.

Thus, US patent No. 4 344 763 (Gillette) describes cosmetic compositions comprising an organosiloxane monomer such as an aminoalkylalkoxysilane  
25 and an organic titanate dissolved in an alcohol.

More specifically, said patent describes a process for shaping the hair, which consists in moistening the hair with water and then in applying a solution containing, in isopropanol, from 0.5% to 15% by weight of  
30 an aminoalkylalkoxysilane and from 0.005% to 1.5% by weight of an organic titanate, and then in placing the hair in the desired shape.

According to this process, it is particularly recommended to keep the isopropanol solution protected from any moisture.

5 A process has also been disclosed, in patent EP-113 992, for simultaneously fixing and conditioning the hair using a composition that is stable in the absence of moisture, containing (A) a siloxane oligomer containing at least one nitrogen-hydrogen bond, and (B) an anhydrous, readily hydrolyzable additive chosen from titanates,  
10 zirconates, vanadates and germanates, and mixtures thereof.

The solvent for the composition is an aliphatic hydrocarbon or an aliphatic halohydrocarbon, preferably 1,1,1-trichloroethane.

15 After applying the composition to the hair, the hair is placed in a humid atmosphere so as to bring about the crosslinking of the siloxane oligomer and of the readily hydrolyzable anhydrous additive.

There is thus a need for a stable cosmetic composition, in particular for treating the hair, which is  
20 essentially aqueous and which makes it possible to obtain a sufficient cosmetic effect, in particular for the hair, in rinse-out or leave-in mode.

One subject of the present invention is thus stable, aqueous cosmetic compositions, in particular  
25 cosmetic compositions for hair treatment and haircare, which overcome the drawbacks of the prior art.

More specifically, one subject of the present invention is stable, aqueous cosmetic compositions for hair treatment and haircare, which give the hair a long-lasting  
30 styling effect and a pleasant feel.

The Applicant has found, surprisingly, that it is possible to formulate cosmetic compositions not requiring the use of an organic solvent and having an effective, rinse-fast cosmetic effect, without the risk of problems of

the hair being charged in the event of overloading, by using in these compositions unpolymerized or relatively unpolymerized, water-soluble organosilicon compounds comprising at least one nonbasic solubilizing chemical function.

It has been observed that when such compositions are applied, pronounced cosmetic effects are obtained, without any problems in the event of overloading, and the effects of which are very rinse-fast and wash-fast.

According to the invention, the cosmetic compositions, in particular for treating the hair, comprise, in a cosmetically acceptable aqueous medium, at least 0.02% by weight, relative to the total weight of the composition, of one or more unpolymerized or relatively unpolymerized, water-soluble organosilicon compounds chosen from organosilanes comprising one silicon atom and organosiloxanes comprising two or three silicon atoms, the organosilicon compounds also comprising at least one nonbasic solubilizing chemical function and at least two hydrolyzable groups per molecule.

The organosilicon compounds according to the invention are capable of forming, in aqueous medium, a nonhybrid compound, after self-condensation and evaporation of the support. The expression "nonhybrid compound" means a compound that is chemically homogeneous as regards silicon, that is to say that it contains no other additional metallic or organometallic species.

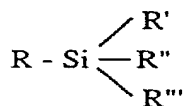
The unpolymerized or relatively unpolymerized organosilicon compounds that are useful in compositions of the present invention are chosen from water-soluble organosilanes comprising one silicon atom and water-soluble organosiloxanes comprising two or three silicon atoms, preferably two. They must also comprise at least one nonbasic solubilizing chemical function, and preferably

only one such function. The nonbasic solubilizing chemical function may be any nonbasic function and in particular any nonamino function that facilitates the solubilization of the organosilicon compound in water. Among the nonbasic  
5 solubilizing functions that may be mentioned are carboxylic acids and their salts, quaternary ammoniums, sulphonic acids and their salts and poly(alkyl ether) residues such as poly(oxyalkylene) residues, for example poly(ethylene oxide) and poly(propylene oxide) and polyglycols,  
10 polyacrylamides and acrylamides, and polyols (including natural polyols).

The organosilicon compounds that are useful in the compositions of the present invention also comprise at least two hydrolyzable or hydroxyl groups per silicon atom. The hydrolyzable groups are preferably alkoxy, aryloxy or halogen groups. They may also optionally comprise other chemical functions such as acid or amine functions.

When the unpolymerized or relatively unpolymerized silicon compound according to the invention comprises a nonhydrolyzable group, this group may also comprise a chemical function such as an acid or amine function.

The organosilanes that are preferred according to the invention correspond to the formula:



30 in which:

R' represents a halogen or a group OR<sub>1</sub> or R<sub>0</sub>;



R'' represents a halogen or a group OR<sub>2</sub> or R'<sub>0</sub>;

$R''$  represents a halogen or a group  $OR_3$  or  $R''_0$ ;

at least two of the groups  $R'$ ,  $R''$  and  $R'''$  being other than groups  $R_0$ ,  $R'_0$  and  $R''_0$ ;

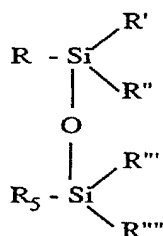
5           R is a saturated or unsaturated, linear or branched hydrocarbon-based group comprising a nonbasic, in particular nonamino, solubilizing chemical function;

$R_1$ ,  $R_2$ ,  $R_3$ ,  $R_0$ ,  $R'_0$  and  $R''_0$  represent, independently of each other, a saturated or unsaturated, linear or branched hydrocarbon-based group optionally bearing additional nonbasic solubilizing chemical groups,  $R_1$ ,  $R_2$  and  $R_3$  also possibly denoting hydrogen.

Preferably, R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>0</sub>, R'<sub>0</sub> and R''<sub>0</sub> represent a C<sub>1</sub> to C<sub>12</sub> alkyl group, a C<sub>6</sub> to C<sub>14</sub> aryl group, a (C<sub>1</sub> to C<sub>8</sub>)alkyl(C<sub>6</sub> to C<sub>14</sub>)aryl group and a (C<sub>6</sub> to C<sub>14</sub>)aryl(C<sub>1</sub> to C<sub>8</sub>)alkyl group.

The organosiloxanes that are preferred in the compositions of the present invention may be represented by the formula:

20



in which:

R" represents a halogen or a group OR<sub>2</sub>;

25 R, R<sub>2</sub>, R' and R'' are defined as above, and R''' represents a halogen, a group OR<sub>4</sub> or a group R''<sub>0</sub>;

R<sub>5</sub> represents a halogen, a group OR<sub>6</sub> or a group R''''<sub>0</sub>;

$R_4$ ,  $R_6$ ,  $R''_0$  and  $R'''_0$  represent a saturated or unsaturated, linear or branched hydrocarbon-based group

optionally bearing additional nonbasic solubilizing chemical groups,  $R_4$  and  $R_6$  also possibly denoting hydrogen; at least one of the groups  $R''$ ,  $R'''$  and  $R_5$  being other than  $R''_0$ ,  $R'''_0$  and  $R'''_0$ .

5 Preferably,  $R_4$ ,  $R_6$ ,  $R_0$ ,  $R''_0$ ,  $R'''_0$  and  $R''''_0$   
represent a  $C_1$  to  $C_{12}$  alkyl group, a  $C_6$  to  $C_{14}$  aryl group, a  
( $C_1$  to  $C_8$ )alkyl( $C_6$  to  $C_{14}$ )aryl group and a ( $C_6$  to  $C_{14}$ )aryl( $C_1$   
to  $C_8$ )alkyl group; and  $R_5$  preferably represents a  $C_1$  to  $C_{12}$   
alkyl group, a  $C_1$  to  $C_{12}$  alkoxy group, a  $C_6$  to  $C_{14}$  aryl  
10 group, a ( $C_1$  to  $C_8$ )alkyl( $C_6$  to  $C_{14}$ )aryl group and a ( $C_6$  to  
 $C_{14}$ )aryl( $C_1$  to  $C_8$ )alkyl group.

Preferably, the halogen is chlorine.

The groups R are preferably chosen from carboxylic acids and their salts, quaternary ammoniums, 15 sulphonic acids and their salts, and polyalkyl ethers.

Among the carboxylic acid functions and their salts, mention may be made of saturated monoacid radicals such as acetic acid, propionic acid, butyric acid, isobutyric acid, valeric acid and isovaleric acid, saturated diacids such as oxalic acid, malonic acid, succinic acid, glutaric acid and adipic acid, unsaturated monoacids such as acrylic acid, methacrylic acid, crotonic acid, maleic acid, fumaric acid and citraconic acid, carbocyclic acids such as benzoic acid, phthalic acid, isophthalic acid and terephthalic acid, hydroxy and alkoxy carboxylic acids such as glycolic acid, lactic acid, tartaric acid and salicylic acid, and salts of these acids, in particular the alkali metal salts and more particularly the sodium and potassium salts of these acids.

30                    Among the quaternary ammoniums functions that may  
be mentioned are tetraalkylammoniums and quaternary  
alkylarylammoniums, the alkyl and/or aryl groups possibly  
comprising functions such as acid, hydroxyl, amine and

halogen functions, and cyclic and heterocyclic quaternary ammoniums.

Among the sulphonic acids and their salts, mention may be made of alkylsulphonic acids such as methylsulphonic acid, arylsulphonic acids such as phenylsulphonic acid, alkoxysulphonic acids such as ethoxysulphonic acid, alkylaryl- and arylalkylsulphonic acids, and salts of these acids, in particular the alkali metal salts of these acids and more particularly the sodium and potassium salts of these acids.

Among the alkyl ether residues that may be mentioned are poly(oxyethylenes), poly(oxypropylenes), poly(oxytetramethylenes) and polyglycols such as poly(ethylene glycol) and poly(propylene glycol).

Another important aspect of the compositions according to the invention is that they contain large amounts of unpolymerized or relatively unpolymerized organosilicon compounds, that is to say compounds comprising one, two or three silicon atoms. Thus, it is necessary for the composition to contain, relative to the total weight of the composition, at least 0.02% of unpolymerized or relatively unpolymerized organosilicon compounds and preferably at least 0.5% by weight, possibly ranging up to 50% by weight.

The content of unpolymerized or relatively unpolymerized organosilicon compounds according to the invention is determined by the usual analysis methods such as silicon-29 and proton NMR spectroscopy, and by chromatography.

The compositions according to the invention are aqueous compositions. However, it is possible, for example for the use of adjuvants, to add a cosolvent such as an alcohol or a ketone, for example ethanol or acetone.

10

conventionally used in the field under consideration.

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The compositions according to the invention are preferably used as hair products, especially for holding the hairstyle or for shaping the hair. They may also give the hair a temporary coloration or provide the hair with

good protection against the effects of UV radiation, while at the same time providing hair holding or fixing properties.

5 The hair compositions according to the invention are preferably styling products such as hairsetting gels or lotions, blow-drying lotions, and fixing and styling compositions such as lacquers or sprays.

10 The lotions may be packaged in various forms, especially in vaporizers, in pump-dispenser bottles or in aerosol containers to allow an application of the composition in vaporized form or in the form of a mousse. Such packaging forms are indicated, for example, when it is desired to obtain a spray or mousse for fixing or treating the hair.

15 A subject of the present invention is also the use of the composition according to the invention in a process for treating the hair, in order to hold and/or color it.

20 According to one embodiment of this process, the composition is applied to rinsed or unrinsed hair, preferably in the form of a spray, either using a pump-dispenser bottle or using an aerosol.

After spraying onto the head of hair, the composition is left to act and to dry.

25 The hair may be placed in the desired shape, either before the application or immediately after.

The drying time may be variable and depends on the nature of the composition.

30 After combing, the hair has a very pleasant feel quality.

The invention is illustrated by the examples that follow.

**EXAMPLE 1**

The formulation below was prepared:

5

<u>Composition</u>	Water-soluble unpolymerized or relatively unpolymerized <u>silicon compound</u>	<u>Water</u>
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Sodium N-[(3-trimethoxysilyl)propyl]ethylene-  
diaminetriacetate neutralized with HCl (pH 6.9)  
(supplied by the company Gelest)  
(g per 100 g of composition)

1	10 g (Active material)	qs 100 g
---	------------------------	----------

Composition 1 is introduced into a container that  
is fitted with a spraying system of the pump-dispenser  
bottle type.

Two wigs of 15 g of natural hair are prepared.  
The hairs are held at the roots on a rubber band and left  
free over the remainder of the length.

The composition is sprayed onto the first wig  
(2 g). This wig is then left until dry. The other wig,  
serving as the comparison, is also left at rest.

The cosmetic properties and in particular the  
styling effect are noted.

The hairs are then washed with a sodium lauryl  
ether sulphate shampoo, and then dried again.

The cosmetic properties are noted a second time.

20

Wig	Styling effect before washing	Styling effect after washing
1	30	15
2 (comparative)	0	0

The results show that the application of a composition according to the invention to the hair gives it a styling effect that is wash-fast.

**CLAIMS**

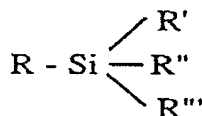
1. A cosmetic composition comprising, in a cosmetically acceptable aqueous medium, at least 0.02% by weight, relative to the total weight of the composition, of one or more unpolymerized or relatively unpolymerized, water-soluble organosilicon compounds chosen from silanes comprising one silicon atom and siloxanes comprising two or three silicon atoms, these organosilicon compounds also comprising at least one nonbasic solubilizing chemical function and at least two hydroxyl or hydrolyzable groups per molecule.

2. The cosmetic composition as claimed in claim 1, characterized in that the unpolymerized or relatively unpolymerized, water-soluble organosilicon compounds represent at least 0.5% by weight of the composition.

3. The composition as claimed in claim 1 or 2, characterized in that the nonbasic solubilizing chemical function is chosen from carboxylic acids and their salts, quaternary ammoniums, sulphonic acids and their salts, poly(alkyl ethers), polyacrylamides and acrylamides, and polyols.

4. The composition as claimed in any one of claims 1 to 3, characterized in that the hydrolyzable groups are chosen from alkoxy, aryloxy and halogen groups.

5. The cosmetic composition as claimed in any one of the preceding claims, characterized in that the unpolymerized or relatively unpolymerized organosilicon compound(s) is (are) chosen from the compounds of formulae:



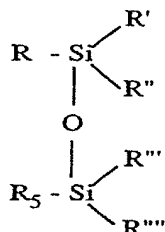
in which:



R''' represents a halogen or a group OR<sub>3</sub> or R''<sub>0</sub>;

R is a saturated or unsaturated, linear or branched hydrocarbon-based group comprising a nonbasic solubilizing chemical function:

10  $R_0$ ,  $R'_0$ ,  $R''_0$ ,  $R_1$ ,  $R_2$  and  $R_3$  represent, independently of each other, a saturated or unsaturated, linear or branched hydrocarbon-based group optionally bearing additional nonbasic solubilizing chemical groups,  $R_1$ ,  $R_2$  and  $R_3$  also possibly denoting hydrogen; and



R" represents a halogen or a group OR<sub>2</sub>;

R<sub>5</sub> represents a halogen, a group OR<sub>6</sub> or a group R''''<sub>0</sub>;

the groups  $R_4$ ,  $R_6$ ,  $R''_0$  and  $R'''_0$  represent a saturated or unsaturated, linear or branched hydrocarbon-based group optionally bearing additional nonbasic solubilizing chemical groups,  $R_4$  and  $R_6$  also possibly denoting hydrogen.

6. The cosmetic composition as claimed in claim 5, characterized in that  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$ ,  $R_6$ ,  $R_0$ ,  $R'_0$ ,  $R''_0$ ,  $R'''_0$  and  $R''''_0$  represent a  $C_1$  to  $C_{12}$  alkyl group, a  $C_6$  to  $C_{14}$

aryl group, a (C<sub>1</sub> to C<sub>8</sub>)alkyl(C<sub>6</sub> to C<sub>14</sub>)aryl group and a (C<sub>6</sub> to C<sub>14</sub>)aryl(C<sub>1</sub> to C<sub>8</sub>)alkyl group.

5 7. The composition as claimed in any one of the preceding claims, characterized in that it is a hair product.

8. The composition as claimed in claim 7, characterized in that it is a hair product for holding the hairstyle or for shaping the hair.

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- (71) Déposant (*pour tous les États désignés sauf US*):  
L'OREAL [FR/FR]; 14, rue Royale, F-75008 Paris (FR).
- (72) Inventeurs; et
- (75) Inventeurs/Déposants (*pour US seulement*): SAMAIN, Henri [FR/FR]; 14, rue du Coteau, F-91570 Bièvres (FR). ROLLAT, Isabelle [FR/FR]; 48, rue de Bellevue, F-92100 Boulogne-Billancourt (FR). JEANNE ROSE, Valérie [FR/FR]; 9, passage Desgrais, F-75019 Paris (FR). SANCHEZ, Clément [FR/FR]; 9, résidence Château de Courcelles, F-91190 Gif-sur-Yvette (FR).
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- En ce qui concerne les codes à deux lettres et autres abréviations, se référer aux "Notes explicatives relatives aux codes et abréviations" figurant au début de chaque numéro ordinaire de la Gazette du PCT.

(54) Title: COSMETIC COMPOSITIONS BASED ON ORGANIC SILICON COMPOUNDS COMPRISING AT LEAST A NON-BASIC SOLUBILISING FUNCTION

(54) Titre: COMPOSITION COSMETIQUE A BASE DE COMPOSES ORGANIQUES DU SILICIUM COMPORTANT AU MOINS UNE FONCTION SOLUBILISANTE NON-BASIQUE

(57) Abstract: The invention comprises, in a cosmetically acceptable aqueous medium, at least 0.02 wt. % relative to the composition total weight, one or several water soluble organic silicon compounds, having one, two or three silicon atoms, at least a non-basic solubilising function and at least two hydroxyl groups or capable of being hydrolysed per molecule. The invention is applicable to hair-care compositions.

(57) Abrégé: La composition comprend, dans un milieu aqueux cosmétiquement acceptable, au moins 0,02 % en poids par rapport au poids total de la composition, d'un ou plusieurs composés organiques du silicium solubles dans l'eau, ayant un, deux ou trois atomes de silicium, au moins une fonction chimique solubilisante non-basique et au moins deux groupes hydroxyles ou hydrolysables par molécule. Application: aux compositions capillaires.

WO 01/22931 A1

<p align="center"><b>DECLARATION AND POWER OF ATTORNEY FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)</b></p> <p><input type="checkbox"/> Declaration Submitted with Initial Filing</p> <p><input type="checkbox"/> Declaration Submitted After Initial Filing (surcharge (37 CFR 1.16(e)) required)</p>	Attorney Docket Number	13833.0012
	First Named Inventor	
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	Application Number	/
	Filing Date	
	Group Art Unit	
	Examiner Name	

As a below named inventor, I hereby declare that:

My residence, mailing address, and citizenship are as stated below next to my name.

I believe I am an original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

COSMETIC COMPOSITIONS BASED ON ORGANOSILICON COMPOUNDS COMPRISING AT LEAST ONE  
NONBASIC SOLUBILIZING FUNCTION.  
*(Title of the invention)*

the specification of which

☐ is attached hereto

OR

☒ was filed on (MM/DD/YYYY) 09/27/99 as United States Application Number or PCT International  
Application Number PCT/FR99/02290 and was amended on (MM/DD/YYYY) (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification; including the claims, as amended by any amendment specifically referred to above.

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Name	Registration Number
Stuart T. F. Huang D. Douglas Price Scott D. Watkins	<div style="border: 1px solid black; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">3</div> <div style="margin-left: 10px;"> <del>34,184</del>  <del>24,514</del>  <del>36,715</del> </div>

SEND CORRESPONDENCE TO:

D. Douglas Price  
Steptoe & Johnson LLP  
1330 Connecticut Avenue, N.W.  
Washington, D.C. 20036

DIRECT TELEPHONE CALLS TO:

D. Douglas Price  
(202) 429-3000

I acknowledge the duty to disclose information which is material to patentability as defined in 37 C.F.R. 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), 365(b) of any foreign application(s) for patent or inventor's or plant breeder's rights certificate(s) , or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability in 37 C.F.R. 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

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Full Name of First Inventor: Henri SAMAIN

(one given name w/o abbreviation plus any other given name or initial and family name)

**Inventor's Signature:**

Heini Samani

Date:

April 12, 2002

Residence:

Bièvres, France

(city and state or city and foreign country)

**Citizenship:**

French *FRX*

**Mailing Address:**

14 rue du Coteau F-91570 Bièvres, France

(street address)

(city and state and ZIP and country)

2-00

Full Name of Joint Inventor: Isabelle ROLLAT  
(one given name w/o abbreviation plus any other given name or initial and family name)

Inventor's Signature: Isabelle Rollat

Date: April 12, 2002

Residence: Boulogne-Billancourt, France  
(city and state or city and foreign country)

Citizenship: French FRX

Mailing Address: 48 rue de Bellevue F-92100 Boulogne-  
(street address)  
Billancourt, France  
(city and state and ZIP and country)

3-00

Full Name of Joint Inventor: Valérie JEANNE ROSE  
(one given name w/o abbreviation plus any other given name or initial and family name)

Inventor's Signature: Valérie Jeanne-Rose

Date: April 12, 2002

Residence: Paris, France  
(city and state or city and foreign country)

Citizenship: French FRX

Mailing Address: 9 passage Desgrais F-75019 Paris, France  
(street address)  
(city and state and ZIP and country)

4-00

Full Name of Joint Inventor: Clément SANCHEZ  
(one given name w/o abbreviation plus any other given name or initial and family name)

Inventor's Signature: Clément Sanchez

Date: April 12, 2002

Residence: Gif-sur-Yvette, France  
(city and state or city and foreign country)

Citizenship: French FRX

Mailing Address: 9 résidence du Château F-91190  
(street address)  
Gif-sur-Yvette, France  
(city and state and ZIP and country)